

The Neutropenia Clinical Dashboard

Capstone 2013

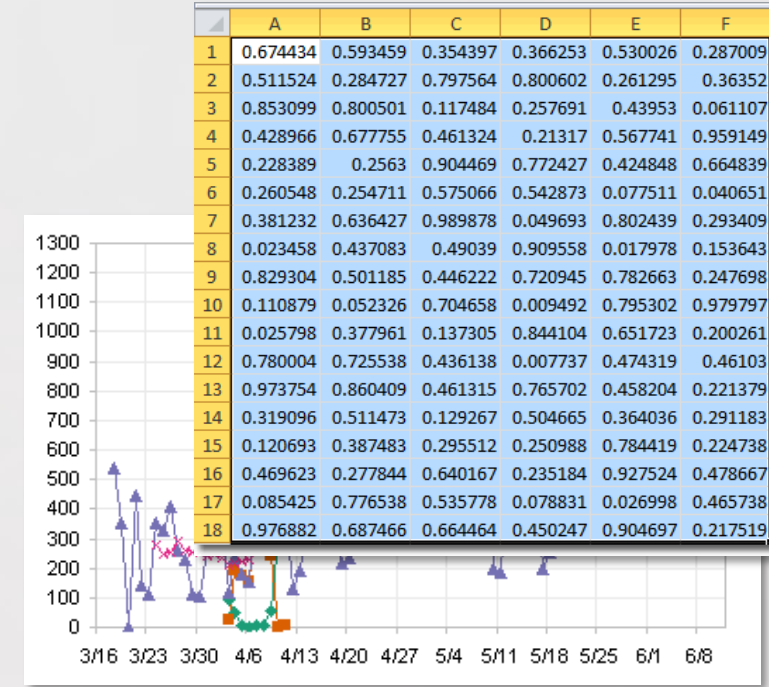
Bone Marrow Data Visualization for Improving Patient Analysis, Diagnosis, and Care

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Problem

- An estimated 20-30% of patients with fatal diseases are misdiagnosed in the United States every year.¹
- Integrating existing electronic medical record systems is often complicated and expensive, delaying critical decisions necessary for patient care.
- In many cases, patient clinical data continue to be stored in hand-made spreadsheets vulnerable to human-error.²

The Neutropenia Clinical Dashboard provides clinicians and staff at the Severe Chronic Neutropenia Registry with the tools to accurately and efficiently analyze bone marrow, medication, and other medical data.



Analysis and Design

Develop Database

Create back-end database to integrate data



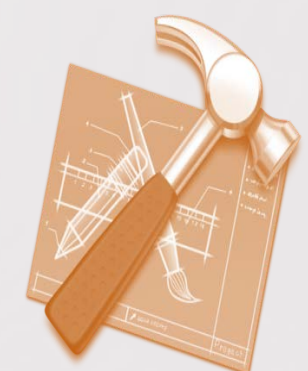
Research

Examine existing medical data visualization tools



Prototype

Create application interface and structure



Refine

Reiterate design and incorporate user feedback



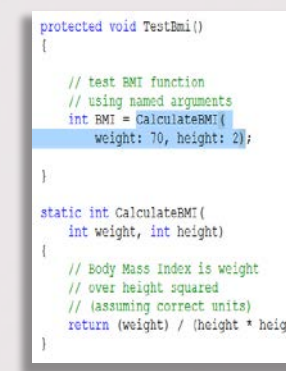
UX Test

Work with users to understand needs and use cases

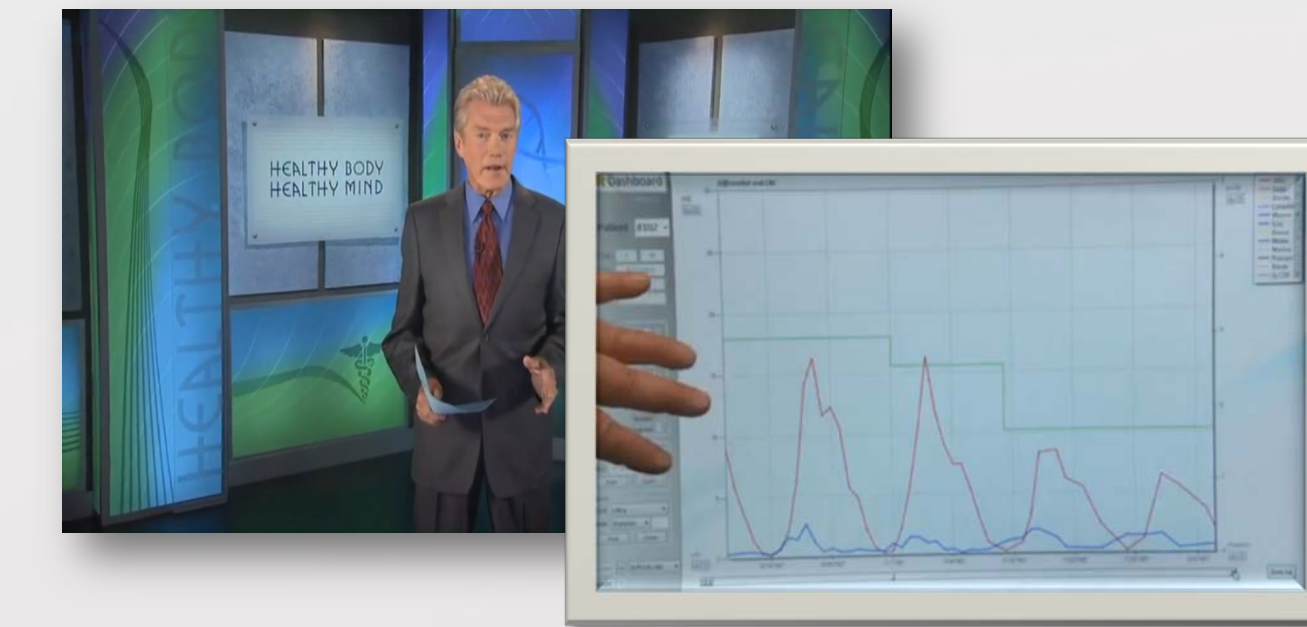


Code

Program initial design and functionality



Impact



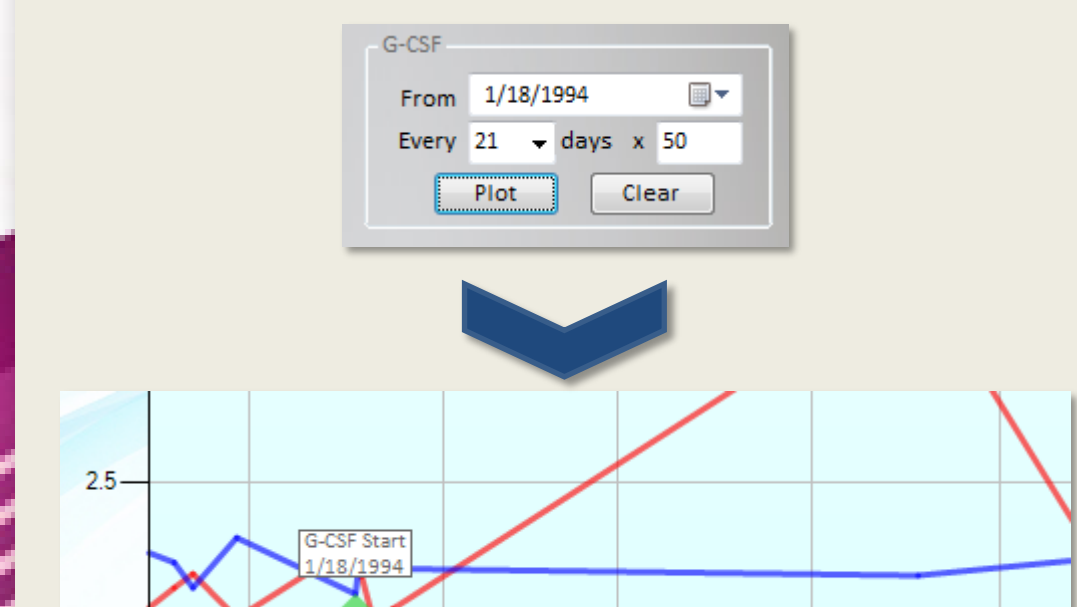
The Dashboard was featured on PBS's *Healthy Body, Healthy Mind* in May 2013



"Understanding neutropenia is important for patients, families as well as nurses and physicians. We all need to know patterns of blood counts— how high they go, how low they go, and when they are low. **The Neutropenia Dashboard is the perfect tool to see and understand these patterns.**"

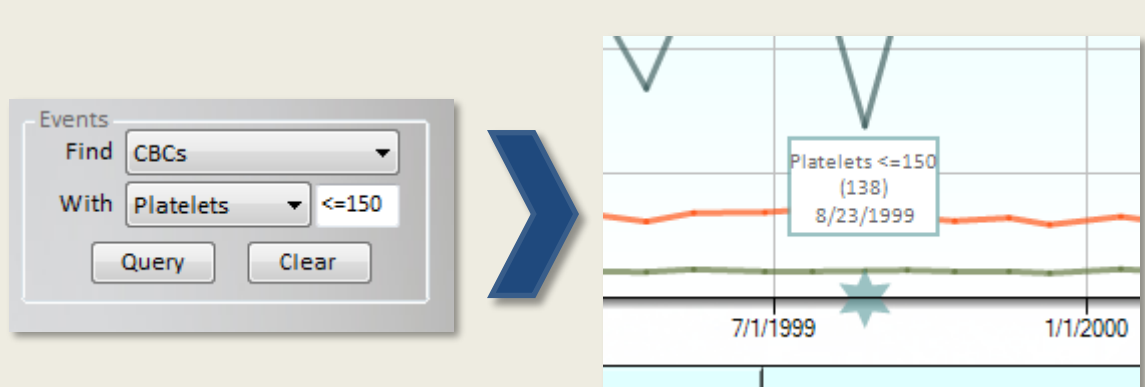
Dr. David C. Dale
Professor of Medicine
Dean, UW School of Medicine 1982-1986

Diagnostic Tools



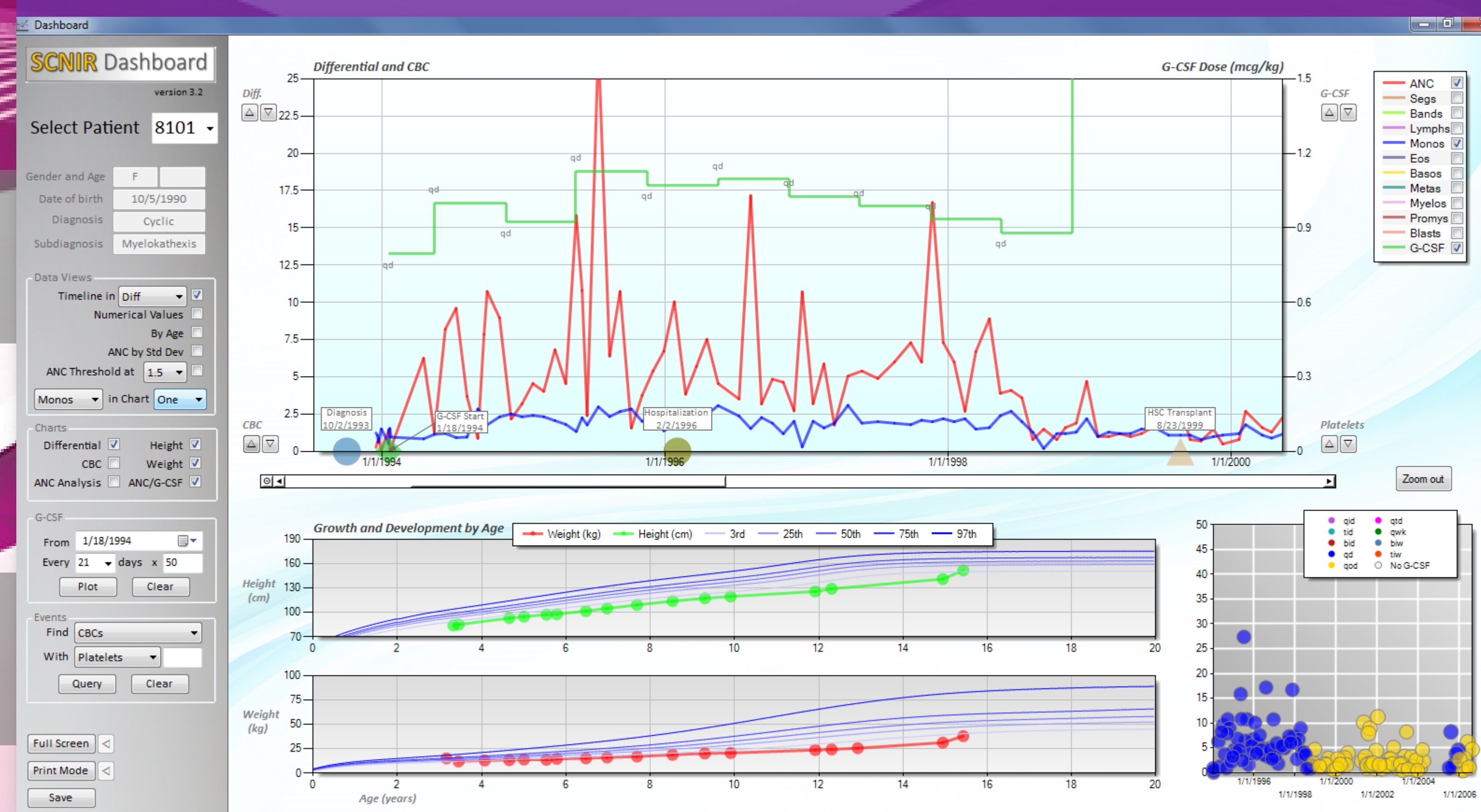
View events critical to patient diagnosis by date, age, or medication dosing period

Dynamic Query

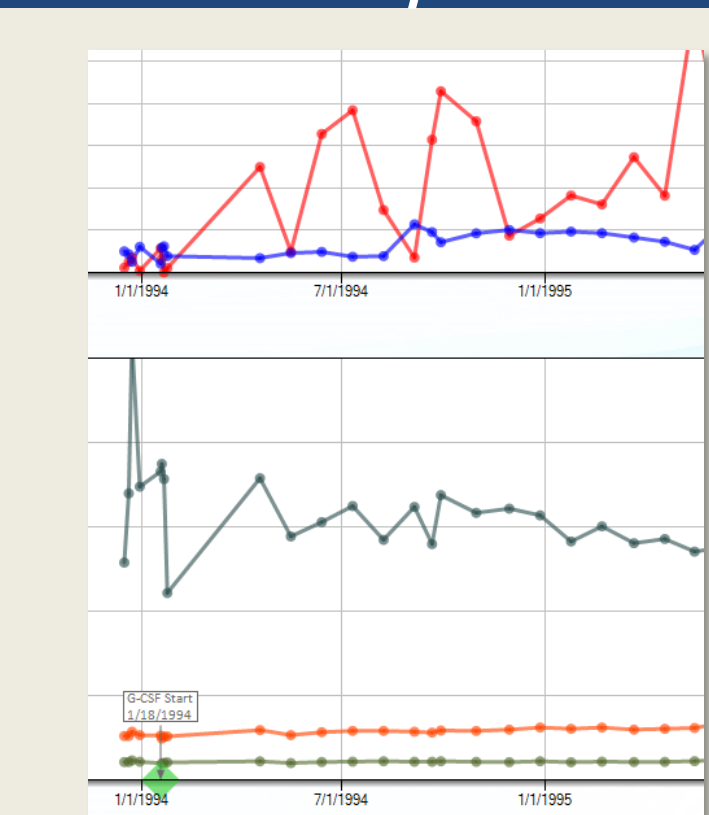


Efficiently query and analyze complex laboratory results

Solution

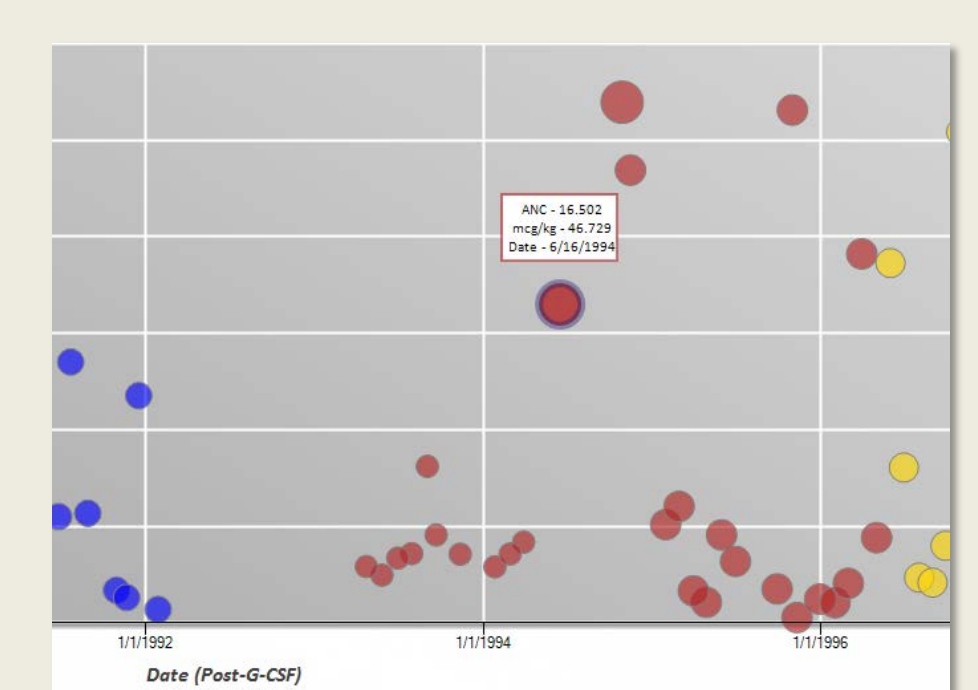


Analysis



Display blood-work cell lines spanning decades to days

Medication Efficacy



Gain insight into dosing regimens automatically calculated and matched to each laboratory test

¹ D. Leonhardt, *Why Doctor's So Often Get it Wrong*, The New York Times, 2006.

² Tarczy-Hornoch et al, *Issues in Biomedical Research Data Management and Analysis*, Journal of the American Medical Informatics Association, 2007.

Acknowledgements

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SCNRegistry

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